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EXAMINER

NGUYEN, KHAI MINH

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/007,015

Applicant(s)

ITO ET AL.

Examiner

Khai M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 04 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14, 17-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Koyama (Pat-5757326).

Regarding claim 1, Koyama teaches a wireless device including:

at least an antenna (fig.1a, fig.1b, col.6 lines 40-58) ; and

at least a conductive ground serving as a ground, through which a high frequency current flows (col.1, lines 44-64, col.3, lines 47-49)), and said conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna (fig.22, col.16, lines 9-18), said at least side of said conductive ground having a feeding point (fig.27b, col.18, lines 48-64), at which said antenna is electrically connected to said conductive ground (fig.27a, col.18, lines 32-47),

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wherein said feeding point is positioned asymmetrical to said conductive ground in any directions included in a plane parallel to said conductive ground (fig.27b, col.18, lines 48-64).

Regarding claim 2, Koyama teaches the wireless device as claimed in claim 1, wherein said feeding point on said side is positioned closer to one end of said side than a center position (fig.27a, fig.27b, col.18, lines 48-64).

Regarding claim 3, Koyama teaches the wireless device as claimed in claim 1, wherein said high frequency current flowing through said conductive ground has an asymmetrical distribution of current over said conductive ground (fig.2, col.7, lines 22-64).

Regarding claim 4, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna extends in straight from said feeding point in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.5, fig.27a, col.8, lines 43-56, col.18, lines 32-47).

Regarding claim 5, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part extends in straight from said bending portion in a direction parallel to said side

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and included in said plane which includes said conductive ground (fig.19, col.15, lines 2-11).

Regarding claim 6, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part extends from said bending portion in generally U-shape which is included in a plane both vertical to said plane which includes said conductive ground and also parallel to said side (col.1, line 65 to col.2, line 10).

Regarding claim 7, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part extends from said bending portion in open-loop shape which is included in a plane both vertical to said plane which includes said conductive ground and parallel to said side (fig.19, col.15, lines 2-11, col.8, lines 57-67).

Regarding claim 8, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna comprises a minority part and a majority part

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bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part comprises a plate extending from said bending portion in a plane both vertical to said plane which includes said conductive ground and also parallel to said side (fig.19, col.15, lines 2-11, col.8, lines 57-67).

Regarding claim 9, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna is positioned in a bottom side of said wireless device (fig.27a, fig.27b, col.11, lines 23-41, col.18, lines 48-63).

Regarding claim 10, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna comprises a conductive pattern which is integrated with said conductive ground on a circuit board accommodated in a case of said wireless device (col.19, lines 23-58).

Regarding claim 11, Koyama teaches the wireless device as claimed in claim 1, wherein said antenna comprises a conductive plate provided on an inner wall of a case of said wireless device (fig.28, col.19, lines 1-13).

Regarding claim 12, Koyama teaches the wireless device as claimed in claim 1, wherein said conductive ground comprises a conductive pattern on a circuit board accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

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Regarding claim 13, Koyama teaches the wireless device as claimed in claim 12, wherein said antenna is accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 14, Koyama teaches the wireless device as claimed in claim 13, wherein said antenna is accommodated in a bottom space defined between a bottom of said circuit board and a bottom wall of said case (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 17, Koyama teaches a wireless device including:

at least an antenna (fig.1a, fig.b, clo.6, lines 40-58); and

at least a conductive ground serving as a ground, through which a high frequency current flows (col.1, lines 44-64, col.3, lines 47-49), and said conductive ground having at least a side which is approximately one quarter wavelength of a radio wave transmitted from said antenna (fig.22, col.16, lines 9-18), said at least side of said conductive ground having a feeding point, at which said antenna is electrically connected to said conductive ground (fig.27a, clo.18, lines 32-47).

wherein said feeding point on said side is positioned closer to one end of said side than a center position (fig.27a, fig.27b, col.18, lines 48-64), so that said feeding point is positioned asymmetrical to said conductive ground in any directions included in a plane parallel to said conductive ground (fig.27b, col.18, lines 48-64), whereby said high frequency current flowing through said

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conductive ground has an asymmetrical distribution of current over said conductive ground (fig.2, col.7, lines 22-64).

Regarding claim 18, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna extends in straight from said feeding point in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.5, fig.27a, col.8, lines 43-56, col.18, lines 32-47).

Regarding claim 19, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part extends in straight from said bending portion in a direction parallel to said side and included in said plane which includes said conductive ground (fig.19, col.15, lines 2-11).

Regarding claim 20, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part extends from said bending portion in generally U-shape which is included in a



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plane both vertical to said plane which includes said conductive ground and also parallel to said side (col.1, line 65 to col.2, line 10).

Regarding claim 21, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part extends from said bending portion in open-loop shape which is included in a plane both vertical to said plane which includes said conductive ground and parallel to said side (fig.19, col.15, lines 2-11, col.8, lines 57-67).

Regarding claim 22, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna comprises a minority part and a majority part bounded by a bending portion from said minority part (fig.6, col.9, lines 20-30), and said minority part extends in straight from said feeding point to said bending portion in a direction perpendicular to said side and included in said plane which includes said conductive ground (fig.6, col.9, lines 31-47), and said majority part comprises a plate extending from said bending portion in a plane both vertical to said plane which includes said conductive ground and also parallel to said side (fig.19, col.15, lines 2-11, col.8, lines 57-67).

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Regarding claim 23, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna is positioned in a bottom side of said wireless device (fig.27a, fig.27b, col.11, lines 23-41, col.18, lines 48-63).

Regarding claim 24, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna comprises a conductive pattern which is integrated with said conductive ground on a circuit board accommodated in a case of said wireless device (col.19, lines 23-58).

Regarding claim 25, Koyama teaches the wireless device as claimed in claim 17, wherein said antenna comprises a conductive plate provided on an inner wall of a case of said wireless device (fig.28, col.19, lines 1-13).

Regarding claim 26, Koyama teaches the wireless device as claimed in claim 17, wherein said conductive ground comprises a conductive pattern on a circuit board accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 27, Koyama teaches the wireless device as claimed in claim 26, wherein said antenna is accommodated in a case of said wireless device (fig.26, col.17, line 63 to col.18, line 9).

Regarding claim 28, Koyama teaches the wireless device as claimed in claim 27, wherein said antenna is accommodated in a bottom space defined between a bottom of said circuit board and a bottom wall of said case (fig.26, col.17, line 63 to col.18, line 9).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-16, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (Pat-5757326) in view of Munson (Pat-6049314).

Regarding claim 15, Koyama teaches the wireless device as claimed in claim 14 (fig.26, col.17, line 63 to col.18, line 9).

Koyama fails to specifically disclose a frequency of said radio wave is not lower than 1 GHz. However, Munson teaches a frequency of said radio wave is not lower than 1 GHz (fig.3, col.5, line 39 to col.6, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a frequency of said radio wave is not lower than 1 GHz as taught by Munson with Koyama teaching in order to increase the antenna bandwidth without increasing the antenna feed impedance.

Regarding claim 16, Koyama teaches the wireless device as claimed in claim 15, wherein said wireless device is a mobile telephone device (col.6, lines 24-38).

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Regarding claim 29, Koyama teaches the wireless device as claimed in claim 28 (fig.26, col.17, line 63 to col.18, line 9).

Koyama fails to specifically disclose a frequency of said radio wave is not lower than 1 GHz. However, Munson teaches a frequency of said radio wave is not lower than 1 GHz (fig.3, col.5, line 39 to col.6, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a frequency of said radio wave is not lower than 1 GHz as taught by Munson with Koyama teaching in order to increase the antenna bandwidth without increasing the antenna feed impedance.

Regarding claim 30, Koyama teaches the wireless device as claimed in claim 29, wherein said wireless device is a mobile telephone device (col.6, lines 24-38).

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M Nguyen whose telephone number is 703.305.3906. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703.308.7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khai Nguyen  
Au: 2684

6/29/2004

  
NAY MAUNG  
SUPERVISORY PATENT EXAMINER